

What is claimed is:

1. An anticollision beacon comprising:

a generally cylindrical, thermally conductive support having an axis and a bottom surface;

5 a plurality of LEDs mounted in thermally conductive relationship to said support;

a plurality of reflectors secured over said arrays, said reflectors defining openings for each of said LEDs, said openings located in an open ended radially oriented trough defined by the reflector; and

10

a thermally conductive base including a support surface for mounting said support in thermally conductive relationship to said base, wherein said support and said base provide a thermal pathway for heat generated by said LEDs.

15

2. The anticollision beacon of claim 1, comprising:

a cup-shaped lens configured to cover said support and said arrays and mount to said base,

wherein said base includes a peripheral heat radiating surface not covered by said lens.

20

3. The anticollision beacon of claim 1, wherein said thermally conductive support is axially symmetrical and has a polygonal exterior surface defining a plurality of axially extending, substantially planar faces.

25

4. The anticollision beacon of claim 1, wherein each said array comprises:

a plurality of LEDs; and

30

a thermally conductive PC board having a substantially planar rear surface opposite said LEDs,

wherein said LEDs are mounted in thermally conductive relationship to said PC board and said PC board rear surfaces are held against said support by said reflectors.

5 5. The anticollision beacon of claim 1, wherein said thermally conductive support has a polygonal exterior surface defining a plurality of axially extending, substantially planar faces, wherein each array comprises:

10 a thermally conductive PC board having a substantially planar rear surface mounted in thermally conductive contact with one of said planar faces; and

 a plurality of LEDs mounted in thermally conductive relationship to said PC board.

15 6. The anticollision beacon of claim 5, wherein each said reflector spans more than one PC board and each said trough includes openings for radially adjacent LEDs from more than one said array.

20 7. The anticollision beacon of claim 1, wherein said openings are located at a radially inward most point of said trough and said troughs are segmented into semi-parabolic reflecting surfaces centered on each LED.

25 8. The anticollision beacon of claim 1, wherein said reflector troughs define segmented reflecting surfaces with each segment centered on said LEDs.

30 9. The anticollision beacon of claim 1, wherein each said LED has an optical axis and radiates light in a hemispherical pattern, said radiated light including axially close light and axially remote light, said trough defining a reflecting surface configured to redirect said axially remote

light into a direction substantially parallel to a horizontal plane including said optical axes.

5 10. The anticollision beacon of claim 1, wherein said PC boards are metal core PC boards and said support is aluminum.

11. A method for providing an anticollision beacon comprising:
providing an axially extending thermally conductive support, said support having an a polygonal exterior surface with
10 a plurality of substantially identical planar faces;
providing a plurality of substantially identical LED arrays, each of said arrays comprising:
a thermally transmissive PC board with a substantially planar rear surface complementary in
15 configuration to each of said faces; and
a plurality of spaced apart LEDs mounted to a front surface of said PC board in thermally conductive relationship to said PC board;
providing a plurality of reflectors defining a pattern of
20 openings coinciding with the LEDs of at least one of said arrays and reflecting surfaces adjacent said openings;
arranging one said array on each of said faces with said rear surface in thermally conductive relationship to said support;
providing a thermally conductive base with a support
25 mounting surface;
securing a plurality of reflectors over said arrays with said LEDs aligned with said openings such that said PC boards are intermediate said reflector and said support and light from said LEDs is incident upon said reflecting surfaces; and
30 mounting said support in thermally conductive relationship to said base.

12. The method of claim 11, wherein said step of securing comprises:
fastening said reflector to said support at axially spaced
locations with fasteners passing through apertures in said reflector
and said PC board.

5

13. The method of claim 11, wherein said step of arranging
comprises:

applying heatsink compound to said rear surface at
locations opposite said LEDs.

10

14. An anticollision beacon comprising:

a thermally conductive support having an exterior surface
including a plurality of substantially planar faces symmetrically
arranged about an axis;

15

an array of LEDs mounted in thermally conductive
relationship to each of said faces, each of said LEDs having an
optical axis and a light radiation pattern surrounding said optical
axis;

20

a plurality of reflectors secured to said support, each of
said reflectors defining a plurality of openings aligned with the
LEDs of at least one array and including a reflecting surface, one
of said LEDs being received in each of said openings;

25

a thermally conductive base in thermally conductive
relationship with said support, said base extending radially
outwardly of said reflectors; and

30

a circuit for providing electrical current to energize said LEDs,
wherein said LEDs emit light when energized, said light including
axially close light having a trajectory at an angular displacement from
said optical axis of less than 20° and axially remote light having a
trajectory at an angular displacement from said optical axis of greater
than 20°, a portion of said axially remote light being redirected by said

reflecting surface to a trajectory substantially perpendicular to a plane including the optical axes of axially aligned of said LEDs.

5 15. The anticollision beacon of claim 14, wherein said reflecting surface defines a trough made up of reflecting surface segments each centered on an LED.

10 16. The anticollision beacon of claim 14, wherein at least one LED of at least one array is axially aligned with at least one LED of an adjacent array and said reflector defines an open ended trough which allows some of the light emitted by said axially aligned LEDs of adjacent arrays to overlap.

15 17. The anticollision beacon of claim 14, wherein said support is a faceted cylinder having a circumference, at least one LED of each array is axially aligned with at least one LED of a circumferentially adjacent array and said reflector defines an open ended trough which allows some of the light emitted by said axially aligned LEDs of circumferentially adjacent arrays to overlap.

20 18. The anticollision beacon of claim 17, wherein the optical axes of axially aligned LEDs project radially outwardly from said support in a plane perpendicular to said axis.

25 19. The anticollision beacon of claim 14, wherein each said reflector covers a plurality of arrays.

30 20 The anticollision beacon of claim 15, wherein said reflectors surround said support to provide a substantially uninterrupted reflecting surface.